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Practical Guide to *Environmental Management for Small Businesses*



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I. Introduction



In a nutshell...

If you walked in this morning and were told that all the environmental 'stuff' is being added to your plate, this book is a good place to start. It will tell you what makes up good environmental management and how environmental management duties can slowly be pulled into everyday activities without disruption. The end result is that employees will save time, your business will save money, and you will be more confident you are in compliance with regulations rather than just hope that is the case. Did you know that growing a good environmental management program is a lot like growing a tree? Read on to see how.

What is this Guide about?

The Practical Guide to Environmental Management for Small Business (Guide) focuses on the many environmental laws and regulations at first, but does not explain them in detail. Now, you may wonder what this Guide is for if it doesn't tell you all about environmental regulations. Here's what: It will help you get organized and get the most out of the valuable time you and your staff spend on environmental affairs. By going through the Guide step-by-step, you will put together a way to manage your environmental responsibilities efficiently, one that will make it much easier and less time consuming to meet

regulatory requirements. Plus, this Guide is about much more than regulations. It is also about saving money and making your business look good in the eyes of your customers and your community.

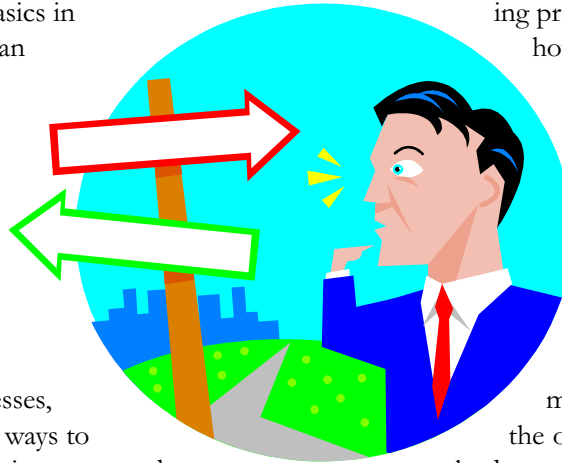
How do I make the best use of this Guide?

You don't have to read the Guide from cover to cover. You can browse the Guide and find ideas you can use right away to produce immedi-



I. Introduction

ate improvements. If your company hasn't paid a lot of attention to environmental management, you will at least want to look at the responsible environmental basics in Section II. Here you can learn about how your business affects the environment, what environmental rules may apply, and how to deal with practical matters like training your employees. Since keeping costs down is critical to small businesses, Section III shows you ways to save money by conserving water and energy, and reducing waste. On the other hand, if your company already has an environmental management program, look at Sections IV—VI.



Section IV is about taking your early efforts and getting them organized by writing a policy, streamlining who does what, and measuring progress. Section V explains how to develop and strengthen relationships with those outside your business to show off your efforts to customers and your community and improve environmental performance. Finally, Section VI looks at an approach called an Environmental Management System, which is what all the other Sections of the Guide lead up to. For those of you who like to read the back of the book first, you might want to glance at Section VI to get a better idea of where the Guide is headed.

II. Responsible Environmental Basics—“Have to’s”



In a nutshell...

This part of the Guide identifies the basics of environmental management—what a business must have in place to comply with regulations. This is like planting the acorn and then taking care of the young seedling. This part shows how to use a flow chart to quickly get a handle on how your business affects the environment. It gives reasons why the time you put into compliance will be well spent. It outlines the regulations that commonly apply to small businesses and where to get help. Then, this part goes into the components of sound environmental management: being prepared for spills, setting up recordkeeping systems and employee training programs, and putting in place good practices. This section includes tools that make compliance easier, such as a master file list and a matrix for keeping track of required training.

How can I understand how my business is affecting the environment?

You know how when you open the box of a new electronic gizmo like a computer or DVD player, there is usually a handy picture laying on top showing you how to connect all the parts? Isn't that great? This part of the Guide explains how to create a picture of your company's processes that is just as handy. This picture, called a flow chart or process map, will show what comes in and what goes out of the process. At first, this diagram will qualify rather than quantify the flow of materials—just what is involved in the process, not how much. You can plug in numbers later as your company pursues process changes and you need to measure results.



Getting started is easy. Look over the example in Figure 1 to get an idea of what your picture can look like and fill in the blanks. Begin with the basics: the raw materials, the process, and the product. So far so good but it isn't the complete picture. The process probably doesn't happen without additions other than just the raw materials. Do you use a chemical to make a reaction occur? Do the raw materials feed through some type of machine? If so, there are elements required to make it work—probably a power source, possibly oil, filters, or parts that are replaced when they are used up. As you examine all the steps in the process and what makes each of them work, you can add more detail to your flow chart. When you look at the process as a complete cycle, the pieces start to fall into place. Raw materials are just one of the resources utilized. For example, when you consider that a specific tool is used and look at the source of its power, it points out another input for the diagram. Then, you can pinpoint output details because all the inputs have to leave the process in some way, shape, or form.

II. Responsible Environmental Basics—"Have to's"

Why Comply?

- **Monetary fines**
- **Your business could be closed down until the problems are fixed**
- **Criminal prosecution or jail time**
- **Reinspection**

Once you have it, you can get lots of mileage out of your flow chart. It helps you think about aspects of your process that may have escaped notice in the past. You can easily see if you have overlooked any regulations that may apply to your processes. The flow chart will also help you understand how your process can be improved because it helps you see clearly the process inputs and outputs and how materials are used. Opportunities to reduce waste or conserve energy will be more obvious. You might notice that you have a "byproduct," something that leaves your process as a waste but can be used to benefit someone else's process. They may even be willing to pay you for it! Hey, "One man's trash is another man's treasure." The flow chart is also a great planning tool. As you look for areas for improvement the visual diagram will make it easier to explain to those not as familiar with the process what you have now and where you want to go. It can also be a great way to explain a new job position to an employee. After all—a picture is worth a thousand words!

Why comply with environmental regulations?

The most obvious reason is to avoid penalties associated with non-compliance—fines for violations can be in the thousands—a severe blow to a small business (not to mention the black mark of being labeled a violator). How does this happen? Certain agencies at the federal, state, and local levels are there to see that businesses follow environmental regulations. To make this determination, they can send inspec-

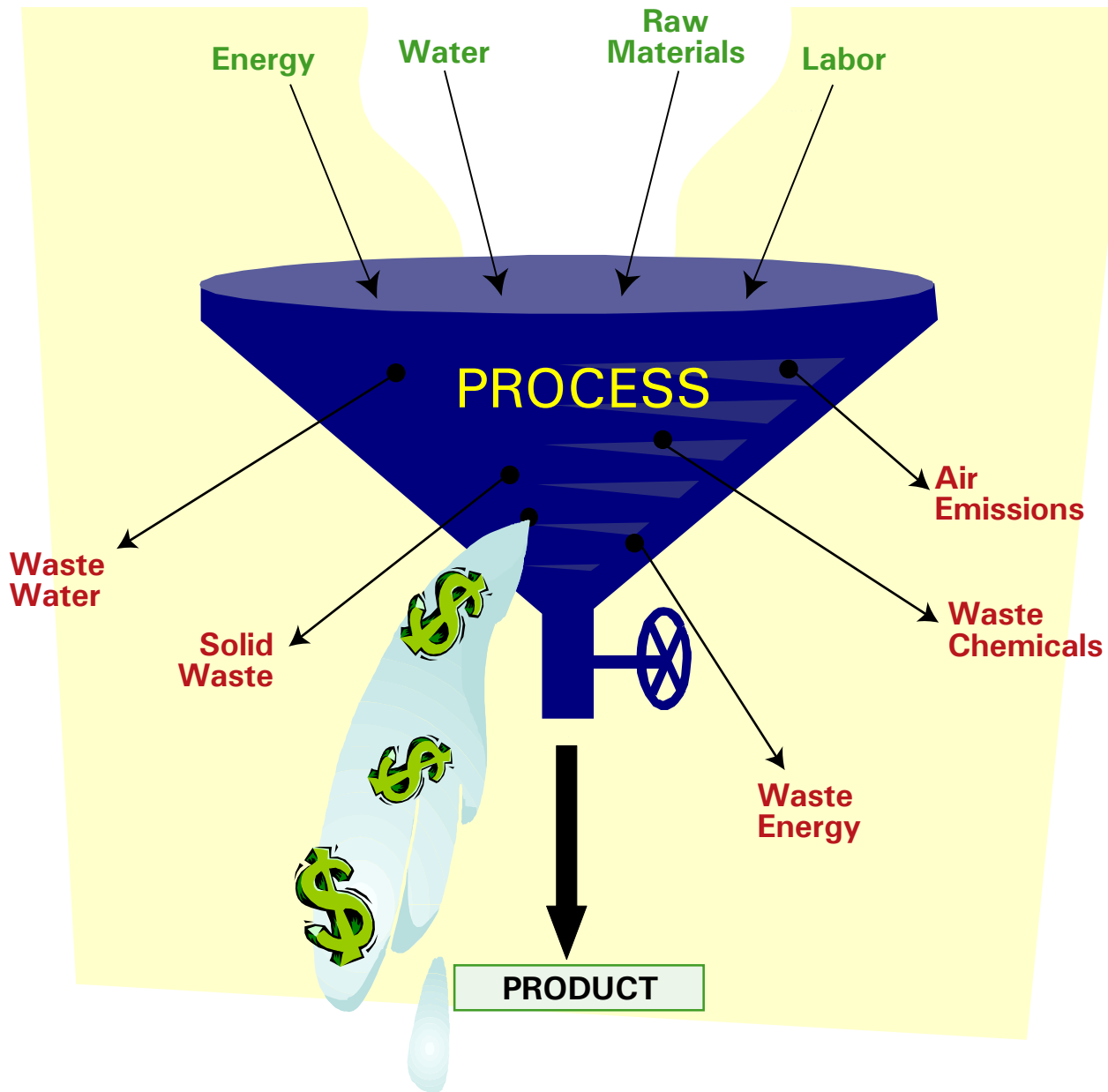
tors to any business to see first hand if it is playing by the rules. Of course, when they find problems, your business will be required to fix them. The agency will send an official letter with the list of the problems or violations. They will spell out what they expect you to do about each violation and a due date that it must be completed by. Depending on the violations, your business can be required to pay monetary fines. The regulator may even close down your business temporarily until problems are fixed. It is possible that the person at your company who has completely failed to take notice of or severely disregarded the regulations may be criminally prosecuted and may even serve jail time. Often, your business will be reinspected to make sure the problems have really been fixed.



If just dealing with the inspection wasn't enough, your problems can make the news. Ironically the same newspaper that couldn't be bothered mentioning the food drive your business sponsored, will be all too willing to plaster the story on the front page about your business being fined or forced to temporarily close. The regulatory agencies keep records of all violations and they are public documents. Anyone can ask to see them—they are allowed to under the "Freedom of Information Act." People are expressing more interest these days in knowing what the companies in their community are doing. The EPA's website is experiencing 40 million hits per month! Real

II. Responsible Environmental Basics—"Have to's"

Figure 1: Generalized Process Flow Diagram



II. Responsible Environmental Basics—“Have to’s”

estate search engines can find environmental problems in areas surrounding a property. Not only can negative image hurt sales in your local market, it can also hinder any expansion activities. This is because some expansions require an environmental permit before you can proceed. When a company is applying for a new permit, there is a public comment period and often a public hearing. If your company has a bad reputation for environmental harm, members of your community are likely to oppose the permit, causing a delay. If the public is really opposed, the permit may not be issued at all, jeopardizing your expansion plans.

Compliance with environmental regulations will help retain the value of your property. Any negative environmental impact can decrease your property value. Before loaning money, banks usually require buyers to pay for a professional review of previous property uses to see if the property may have been contaminated in some way. So if you ever need to change locations or use your property for collateral, it will become important to be able to show that your activities have not caused contamination. Good documentation that your company is in compliance with environmental regulations can protect you from having to pay for past contamination to your site. Likewise compliance with regulations can lower the cost of liability insurance, because insurance companies will have less concern about the future costs of a clean-up or the risk of harm to the health of your employees and community.

What regulations might impact me?



There are so many environmental laws and regulations that they fill many books! When you're already swamped with day to day business, how can you find out which regulations are important without wasting too much time? A good place to start is to think about how your business activities could affect the environment. You bring in raw materials and after some work is done, they leave as a product. Or, maybe you use raw materials to perform a service that fixes, improves, or cleans something for your customer. But, what else is going on? Is the air and water leaving your property the same as when it came in? If your process has leftovers that may be contaminated by chemicals—even in tiny amounts—they could be regulated. Where do they go? To a storm drain or sanitary sewer? To the dumpster? Perhaps you keep materials on your property that could cause a spill if their containers leaked. This is a good time to get out the process flow chart you developed and add to it if you have thought of any new inputs or outputs. Now, you are ready to take a look at Table 1 below. Although it doesn't cover every last environmental regulation, it will give you a good idea of the common ones that you should be concerned about and help you rule out the ones that don't apply.

II. Responsible Environmental Basics—"Have to's"

How can I get more information about regulations that may apply to my business?

This Guide would be too long and complicated if it gave you detailed information on each regulation. Besides, that's what your Small Business Assistance Program (SBAP) is for. Just



a phone call away is a person who's not a regulator but has the experience and know how to help you cut through the red tape and quickly figure out what regulations apply to your business. And,

by all means, don't throw up your hands and give up—the chance of a penalty for breaking environmental laws—even once, even by accident—are way too big of a risk to take for your small business and the people who work there! After all, you call a tax auditor to be sure you have filed your taxes properly, don't you? In the same way, you may need professional help to help you take care of all the nitty gritty details of environmental compliance. And remember, consultation with your SBAP is free of charge.

Once you have a good handle on what regulations apply to your business and what you need to do to comply, you can go about getting to it. But, environmental regulations are notorious for changing often. So you also need to find a way to stay on top of this so you don't get out of compliance by accident. One way is to attend

an update conference on the regulations that apply to your business once a year or so. Or, you could just put a tickler on your calendar to call your SBAP every few months or so and ask them to help you stay in the loop.

Why can't I wait until someone tells me what to do?

There are a lot of environmental laws out there and not all of them matter to your business. Why should you weed through all of that now instead of catching up on work that should have been done yesterday? Why not wait until a friendly inspector shows up, takes a tour, and creates a list of burning issues—signed, sealed, and delivered? After all, the bureaucrats created regulations that no one else can understand—let them tell you what you are supposed to be doing about the whole mess. Well, sorry to say, this is not the easy way out.

First, not understanding what regulations apply to your business is not an acceptable excuse for failing to meet the requirements. Just as you can be ticketed for breaking a traffic law without being aware of it or penalized for a mistake in a tax return or failure to pay enough, ignorance of the rules does not protect you from enforcement, even criminal enforcement.

Secondly, although an inspection will generate a handy list of things that you need to do, dropping everything to meet the imposed deadlines can cost more than would have been invested to get into compliance in the first place.

Table 1: Major Categories of Environmental Regulations

Type of Impact	Regulation	Description of Regulation
Wastes containing chemicals even in tiny amounts. Examples: Parts washing fluids, paint thinners, acids, caustics, toxic chemicals like pesticides or chlorinated solvents, and wastes that have toxic metals in them like lead, cadmium, or chromium.	Resource Conservation and Recovery Act (RCRA) of 1976 and subsequent amendments	Tells you what a hazardous waste is and sets requirements for taking care of it on site, moving it from one place to another, and where and how it may be treated or disposed. Includes special provisions to make recycling easier for universal wastes: dry cell batteries, mercury switches, and recalled pesticides. <u>Thresholds:</u> Applies to any amount of hazardous waste. <u>Requires a Permit?</u> Yes, for certain hazardous waste activities. <u>Regulatory Reports?</u> Yes, annually, for some, but not all, generators, and any business that must have a permit.
Waste disposal liability. Example: The company that took your waste ten years ago went bankrupt, leaving a contaminated landfill. Now you may be required to share in the cost for the site's clean-up.	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	Maintains the "Superfund" to pay for clean up of hazardous waste sites up front. Later, EPA can recover costs from each "Responsible Party (RP)." Those who once owned the site, presently own the site, or once sent waste to the site can be an RP. <u>Thresholds:</u> Anyone who owned or contributed waste to a site can be an RP. <u>Requires Permit?</u> No. <u>Regulatory Reports?</u> No, but lots of other paperwork. <u>Special Considerations:</u> If you ever receive a letter that suggests your business may be an RP, get a good environmental attorney before you reply.
Air pollutants released from business operations. Examples: Boilers and furnaces, paint and dye application, parts cleaning, sand blasting or other dusty operations.	Clean Air Act (CAA) and its amendments	Sets up a system of controls to be sure that pollutants coming from a business' operations or heating plant do not hurt the overall air quality in the region. It regulates more than 380 pollutants, including ozone depleting substances, hazardous air pollutants, and a host of others. <u>Thresholds:</u> Many, depending on the specific air contaminant released; usually given in pounds per year. <u>Requires Permit?</u> Yes, depending on what contaminants are emitted and in what amounts. <u>Regulatory Reports?</u> Yes, annually, if your business is subject to a permit. Daily monitoring and quarterly reporting may also be required depending on the type of operation. <u>Special Considerations:</u> You may have to obtain a permit before you can begin construction of operations that will increase air emissions.
Contaminated water from business operations or property. Examples: Process water going off your property through a drain. Storm water that runs off your property through a storm drain or another waterway.	Clean Water Act (CWA) and its amendments	Sets up a system of controls to be sure that wastewater coming from cities, businesses, and farms does not hurt the quality of waterways such as wetlands, ponds, streams, and lakes. <u>Thresholds:</u> Vary for each contaminant based on where it is going and what authority has control. It can be very small, such as a couple parts per million. <u>Requires Permit?</u> Yes, if your business dumps wastewater directly into any surface waters, even if you treat it first, you may have to obtain a permit. Also for storm water run off for certain types of business operations. Some local authorities also require a permit for discharges to the sanitary sewer. <u>Regulatory Reports?</u> Yes, if your business is subject to a permit. Monitoring may also be required.
Chemical spills to air, water, or land. Examples: A chemical leaks into a storm drain and contaminates a stream. A valve on your refrigeration unit fails, releasing ammonia gas to the air.	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) <hr/> Emergency Release Notification under the Emergency Planning and Community Right-to-Know Act (EPCRA)	Makes possible a national emergency response program for certain spills and accidental releases. If your business releases certain chemicals, called "hazardous substances," you must notify the National Response Center. <u>Thresholds:</u> Amount of a substance released is more than or equal to its listed "Reportable Quantity," or "RQ." These amounts vary by substance and can be as small as one pound. <u>Requires a Permit?</u> No. <u>Regulatory Reports?</u> Yes, in follow up to reported releases. <hr/> <u>Thresholds:</u> Amount of a substance released is more than or equal to its RQ. <u>Requires a Permit?</u> No. <u>Regulatory Reports?</u> Yes, in follow up to reported releases.

Table 1: Major Categories of Environmental Regulations (cont'd.)

Type of Impact	Regulation	Description of Regulation
Emergency planning for chemicals stored and used at your business site. Example: Your business has hazardous chemicals on site that could pose a danger to the local community if they spilled, were released, or involved in a fire.	<i>Emergency Planning</i> under EPCRA	Puts in place coordination and planning so that state and local government agencies can prepare for and respond to hazardous chemical spills. If your business is covered by these requirements, you must notify state and local planning commissions of that and assist with, and provide information for, development of the local emergency plan. <u>Thresholds:</u> Amount of a listed substance kept on site is more than or equal the listed Threshold Planning Quantity (TPQ). TPQ's vary by substance and can be as little as one pound. <u>Requires a Permit?</u> No. <u>Regulatory Reports?</u> Notification of any changes at your facility that affect emergency planning.
Telling the community and local responders about chemicals stored and used at your business site. Example: Your business has hazardous chemicals on site that could pose a danger to the local community if they spilled, were released, or involved in a fire.	<i>Hazardous Chemical Reporting: Community Right-to-Know</i> under EPCRA	Provides a way for the public to access information about hazardous chemicals that community businesses use, store, or release to the environment. Requires you to submit copies of Material Safety Data Sheets for certain hazardous chemicals you keep and use at your business, and to report how much of each you have. <u>Thresholds:</u> For listed substance, the TPQ or 500 pounds, whichever is less; for all other OSHA hazardous chemicals, 10,000 pounds. <u>Requires a Permit?</u> No. <u>Regulatory Reports?</u> Yes, an annual chemical inventory report (TIER I or II).
Telling the community and regulators about chemicals released into the environment as part of your normal business operations. Example: Your business has hazardous chemicals on site that could pose a danger to the local community if they spilled, were released, or involved in a fire.	<i>Toxic Chemical Release Reporting: Community Right-to-Know</i> under EPCRA	For certain hazardous chemicals used by certain industries (as determined by SIC code), requires you to measure or estimate the amount that came on your site during the year and what happened to it; such as, how much went into your wastestream. This information is made available to the public, such as on EPA's EnviroFacts web site. <u>Thresholds:</u> You manufacture or process 25,000 pounds or otherwise use 10,000 pounds of a listed hazardous substances at your site in a year. (Certain chemicals of special concern have lower thresholds, like mercury with a threshold of 10 pounds.) <u>Requires a Permit?</u> No. <u>Regulatory Reports?</u> Yes, an annual Toxic Release Inventory.
Managing Chemical Risks. Example: You have a process within your business operations that could release a dangerous amount of toxic chemicals to the air if it malfunctioned.	<i>Chemical Accident Prevention</i> under the Clean Air Act	Requires you to evaluate certain processes of your business operations to determine if it could pose a danger to your neighbors through an accidental chemical release. If so, you must undertake planning to prevent malfunctions from occurring and to reduce the harm from a chemical release if it does occur. <u>Thresholds:</u> The amount of a chemical in a process is equal to or more than its listed threshold. <u>Requires Permit?</u> No. <u>Regulatory Report?</u> Yes, requires initial submission of Risk Management Plan and registration form, and updates per schedule given in the regulation.
Pesticides. Examples: Your staff apply weed killers on outdoor property, use pesticides to control rodents or insects, or you hire a pesticide applicator to do this.	Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)	Governs the use and disposal of all pesticides to prevent harm to people and the environment. Requires that you be sure that people using restricted use pesticides at your business are certified, and, if you are an agricultural business, that you put in place an extensive Worker Protection program for employees who work with pesticides. (There are many additional requirements if your business manufactures pesticides or creates plants that are genetically pest resistant.) <u>Thresholds:</u> Applies to any amount of restricted use pesticide. <u>Requires Permit?</u> Requires certification of persons who apply restricted use pesticides. <u>Regulatory Report?</u> No.
Polychlorinated Biphenyls (PCBs). Example: You have equipment that uses a PCB-containing transformer as a component; you have to replace PCB-containing electrical ballasts in your lighting fixtures.	<i>Polychlorinated Biphenyls (PCBs)</i> under the Toxic Substances Control Act (TSCA)	Requires identification and extensive recordkeeping for PCB-containing items. Sets requirements for taking care of these items on site, moving them from one place to another, and where and how they may be treated or disposed. <u>Thresholds:</u> Applies to certain PCB-containing material (depends on whether PCB concentration of the source of contamination was 50 ppm or greater). <u>Requires Permit?</u> Yes, if your business treats or disposes of PCB-containing wastes. <u>Regulatory Report?</u> No.

II. Responsible Environmental Basics—"Have to's"

You will not have the luxury of time to look for the least expensive and disruptive way to work within the rules.

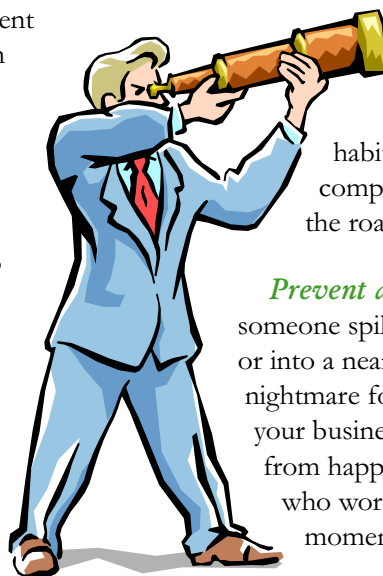
Keep in mind that if your business seeks assistance with understanding how regulations apply, you may be given some leeway in correcting problems that are found as part of that effort. For example, the Clean Air Act (CAA) Compliance Assistance Enforcement Policy for Small Business issued in 1994 provides for extra time to correct violations found during requested assistance from a state SBAP.

Finding out what rules apply to your business and getting started on addressing them by putting an environmental management program in place is well worth the effort. You will be able to talk knowledgably about what you have done to meet the requirements and defend your methods as offering equal protection.

Everyone at your company will be more prepared for an inspection and more organized to follow up on any issues that result. To put it simply, an environmental management program focusing on regulations is a way for your business to emphasize effectiveness, efficiency, and continuous improvement instead of crisis management

What are the basics of good environmental management?

An environmental management program steers your activities in a direction that avoids bad effects on the environment and complies with regulations. The ideas in this part will help you make the best use of the time you invest in environmental affairs. They will get you organized and help you make sure you've got the basics covered. By working through this part, you will develop good habits that will make regulatory compliance a snap and save time down the road.

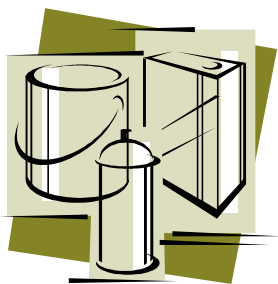


Prevent and Be Prepared for Spills. If someone spills chemicals onto your property or into a nearby waterway it can fast become a nightmare for your business. So, it is vital to your business to do all you can to keep spills from happening and make sure everyone who works there knows what to do the moment a chemical spill does happen.

A common cause of spills is the container: either it is so old and decrepit that it springs a leak, or someone knocks it over or drops it. There are several easy ways to prevent this. First, take a close look at your chemicals every week or so; if you notice any containers in bad condition, get rid of them (using proper disposal methods) or transfer their contents to a new container. At the same time, check to see

Fines can add up to large sums. A kitchen and bath cabinet company with 50 employees was fined \$25,000 for neglecting to file an annual report under EPCRA. The fine was based on \$5000 per report times 5 years. The regulation cited allows for fines up to \$25,000/violation, which would have added up to \$125,000. But, the 'low' penalty was allowed because it was a small business using small amounts of chemicals.

II. Responsible Environmental Basics—"Have to's"

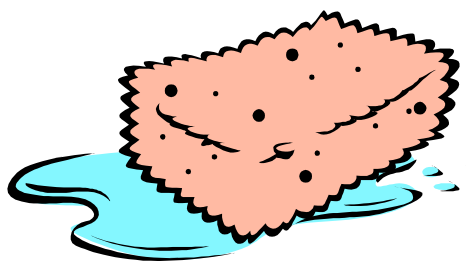


that containers have good caps that are tightly closed. Put containers holding hazardous chemicals or wastes into other containers, trays, or drip pans to catch and contain any

chemical that spills or leaks out. You can also use this approach when you move a chemical container from one place to another: place small containers in a bucket or pail; place larger containers in a tub with hand grips or onto a cart with sides on it that will prevent any spill from flowing off. When transferring a chemical from its original container, be sure the new container will safely hold the chemical you are pouring into it: is it made of a material that won't react with or dissolve in the chemical? Does it have a tight fitting cap? Be careful not to overfill the new container.

Another good thing to do is to locate all the drains on your property, both indoors and outdoors, and determine where they go to. If your building is old, you may be surprised to find that the drain you were sure led to the sanitary sewer and your local wastewater treatment plant actually connects to the storm sewer system that drains directly to a lake or river. After you go to all this trouble, mark your drains accordingly. Consider placing easy to use drain covers and spill supplies close by drains to close them off from a spill if you have time and it is safe to do so.

If you don't have an incident response plan, make it a high priority to develop one. Chances are you have to have some type of incident response plan to comply with regulations, so any steps you take will probably put you ahead. This doesn't mean your employees have to know how to clean up a spill by themselves. In fact, they should not clean up chemical spills at all, except for tiny ones, unless they have had extensive training. But, anyone in your business who works with chemicals should know how to keep themselves and their coworkers safe if there is a spill and who to call for help. Take some time to ask about the capabilities of your city or county emergency services. Do they have a hazardous materials response team (often called a hazmat team)? If so, do they have the necessary equipment and training to clean up the types of spills that could happen at your place? If you call them in, how much will it cost? Answer these questions before you have a spill in progress and things are going to go a lot more smoothly.



II. Responsible Environmental Basics—"Have to's"

Label Hazardous Materials and Wastes Properly. Have you ever looked at a glass jar of clear liquid in your maintenance cabinet trying to remember what it is? You think on it and narrow it down to one of two things: a xylene-based paint thinner or a paint stripper containing methylene chloride. This is a serious problem because these products have very different hazards. The paint thinner is flammable while the stripper is not. The stripper is a lot more toxic than the thinner. You can't even dispose of it properly because they each have a different hazardous waste code. To prevent this headache, when you look over your chemicals to check for leaks and bad containers, check the labels too. If any are falling off or fading, write the label information on a fresh sticker and attach it to



the container. When transferring chemicals from the original container to another one, label the new container right away so you won't forget what it is. When deciding on a label for a waste container, be specific. A container labeled "WASTE" will attract all kinds! Soon you will have a mixture of wastes that will be hard to classify, unsafe to handle because you don't know what's in it, and more costly to ship out.

Here are some examples of good labels for various kinds of wastes in your small business:

**Waste Parts
Cleaner
(contains
methylene
chloride)**

**Waste Paint
Thinner
(contains
xylene)**

**Paint Stripper
Waste
(contains
methylene
chloride)**

**Waste Etch
Bath
(contains
sulfuric acid)**

Maintain Good Housekeeping. Here are some signs that you need to devote more time to housekeeping:

- You find yourself ordering a chemical product that you already have because your shelves were so cluttered when you looked for it you couldn't see it was there.
- You pick up a spray paint can out of the storage cabinet only to discover that it is empty.
- You open the shop door and knock over a can of paint that was sitting just inside.

Here are some goals to strive for:

- You open any storage cabinet and can tell at a glance what products are there and whether any containers have leaked or spilled.

II. Responsible Environmental Basics—"Have to's"

- There is a list nearby to check off chemicals that need reordering.
- Chemical containers are situated safely—that is, away from the edges of shelves, away from high traffic areas, and out of the way of swinging doors.
- Empty containers are marked "MT" and properly disposed of right away, or at least staged at a labeled bin or shelf, so they don't get confused with products still in use.
- You cannot find a container without a label anywhere in your business.
- At the end of a shift, your employees tightly close any chemical containers they are using and return them to their designated storage space where "there is a place for everything, and everything is in its place."
- You have supplies and personal protective equipment (e.g. safety goggles and protective gloves) for safely cleaning up small spills in each work space in a location that is easy to get to and well marked.

If you think your housekeeping is in pretty good shape, invite your local fire inspector in for a look. He or she will probably give you a few more ideas. Getting your housekeeping in order is like weeding—it's a pain in the neck but it has to be done so you can see whether anything worthwhile is growing under all the clutter.

Train employees. Too often, the environmental management program hides in files and reports and never gets out to where the rubber meets the road. You can have the greatest ideas

in the world to protect the environment, and even some that will save money to boot, but nothing will come of them if employees don't know about them. This sounds obvious until you remember that at most small businesses everyone is short on time. Because of this, it is not unusual that what needs to be done never gets communicated to who needs to do it. A well thought out training program is like sunlight to your seedling environmental management program. It energizes employees because training sheds light on what they need to be doing.



Let's say that your boss just put you in charge of environmental training for your

business. Here are some tips:

- As you get your training up and running, set priorities—(1) train those who handle chemicals on what to do if there is a spill or release, (2) make sure you have training programs as required by regulations, (3) train them on additional good practices.
- Use your process flow diagrams to discover whose jobs involve tasks that could affect the environment.
- Develop a list of training topics that make sense for each job, beginning with training required by regulations. You can use a matrix to help with this (see Figure 2). These tools can help you set up training efficiently so each

• • • • •
• **Document any training even if it is an informal tailgate session.**
• **Keep a record of who was trained, the topic, the date, how long it was, and whether it was classroom, one-on-one, or on-the-job. If training involves a new task, offer to help the employee the first time they undertake the task, or team him or her up with an employee experienced in the task. This counts as training too.**
• • • • •

II. Responsible Environmental Basics—"Have to's"

Figure 2: Sample Employee Training Matrix

Employee's Name:	John Doe	Required Training: <ul style="list-style-type: none">• Hazardous Waste—initial and annual.• Incident Response—initial, annual drill, incident critiques, and when plan changes.• DOT—initial Awareness, initial Function Specific, three-year refresher.• Storm Water—per permit, annual.• Air—per permit, initial and when permit changes affect press operation.		
Employment Date:	March 21, 2000			
Termination Date:				
Job Title:	Press Operator			
Note: OJT refers to On the Job Training.				
Training	Initial	2001	2002	2003
<i>Hazardous Waste</i>	3/30/00	Annual Refresher: 3/15/01 Update (OJT):		
<i>Incident Response Plan</i>	3/30/00	Drill: 1/10/01 Incident Critique: 2/23/01 Plan Update: 3/15/01		
<i>DOT Hazmat</i>	Awareness: 3/30/00 Function Specific: 4/12/00			
<i>Storm Water</i>	3/30/00	Update (OJT): 3/11/01		
<i>Air Permit</i>	3/30/00	Update (OJT): 2/29/01		

employee gets the training he or she needs, but does not sit through training they don't need (a good way to make them mad at you and lose interest).

- Make yourself available for follow up questions, and know ahead of time who you can call if someone asks a question you don't know the answer to (contact your SBAP).

Keep records of your efforts and successes.

Keeping good records of your environmental management activities is like the fertilizer: it

nourishes your environmental management program. Good records tell you at a glance what's going on and what needs to be done on a regular basis (like annual training or weekly inspections). They put you in a better position to pass a regulatory inspection. Most inspectors start with a close look at your environmental records. Records in good shape start you off on a good note. So, be clear on what files you must have to be in compliance and get them organized first! After that, you can decide what information has additional value to you. Some records are

II. Responsible Environmental Basics—“Have to’s”

essential to protect you from legal and financial troubles down the road. Others can give you valuable data on business performance, or come in handy when you want to show your customers and neighbors that your business is “green.”

The Sample Master File List in Figure 3 gives you a simple system to organize your environmental management files and records. It covers the most common environmental filing and recordkeeping requirements, the ones that apply to most small businesses. Use the Sample Master File List as a starting point, then modify it to suit your facility and staff. Table 2 summarizes the information in the Master File List, explains why each file needs to be maintained, and provides guidelines for how long files and records need to be kept.

Be Prepared for a Regulatory Inspection.

Maybe you think it can't happen to you because your business is too small. But, if you do get inspected—even just once—it will pay to be prepared. Knowing what to expect will help you be more confident and less stressed during an inspection.

Before an inspection takes place, decide who can best answer questions about your business' compliance with environmental regulations while also having a good grasp of its operations. Designate a primary contact and a back-up person. Both should have access to the files, records, and locations within the business that an inspector may want to look at.

Let's say you are the primary contact. Tell front office staff that if an inspector drops by, they should welcome him or her and call or page you or your back-up. Once you get the call, get there as soon as possible. When you first meet the inspector, it is appropriate to ask for some identification and for information about the kinds of issues he or she is interested in. The inspector will usually look at records first and then ask for a tour of your operations. Take the inspector to any place in your facility they request. Take thorough notes during the inspection. If you can, direct employees to immediately correct any problems brought up by the inspector, as long as you clearly understand what needs to be done.

After the inspector leaves it may take weeks or even months for you to receive a follow up letter from the regulatory agency stating the results. But, don't allow anyone at your business to consider the matter closed until you receive a letter that says so. If you are served with a Notice of Violation or other citation as a result of the inspection don't panic. Ask your contact at the state Small Business Assistance Program to help you respond. They can help you understand what corrective actions you must take and how soon and may even be able to serve as a go between and advocate for you. Finally, try to keep a positive outlook. Going through an inspection can be a stressful and disruptive experience, but you will get through it and afterwards you will know better how your environmental management program is doing.

II. Responsible Environmental Basics—"Have to's"

Figure 3: Master File List

General Environmental Management Files

Facility ID number(s)—In many states, the regulatory agency assigns an ID number to your facility that applies agency-wide. Keep this on file so you can find it when talking to regulators, or when visiting the regulatory agency to look at files or records they have about your facility.

Spill Response—Keep copies of all your spill response plans and associated documents here. At the top of each plan, keep a current call list for your on site emergency coordinators and off-site responders (e.g., city hazmat team). If these contacts are the same for all plans, place the call list in a separate, well marked file folder at the front of this part of files. Do the same for listing phone numbers you would use to report a spill to regulatory agencies (e.g., state spill response hotline, State Emergency Response Board, National Response Center). Helpful categories could include:

- ***Incident response call list and decision tree***
- ***Spill reporting call list***
- ***Hazardous waste spill response plan***
- ***SPCC plan***
- ***Storm water spill preparedness plan***

Within each plan file include:

- ***Copy of plan***
- ***Summary of annual plan exercises***
- ***Documentation and critique of incidents that triggered the plan***

Interaction with Regulators—Keep a record of all your interactions with regulators here, except for information directly related to a specific environmental permit, which should be kept in the permit file. This includes copies of any letters you send to regulators and brief notes of any conversations you have with them—not just the stuff they send to you. If you act based on their answer to one of your questions and someone later disagrees, it will help to be able to show who gave you that information and when. If there isn't a lot of information, you may be able to keep it all in one file. If not, consider breaking it up into files for each agency (e.g., EPA, your state environmental regulatory agency, municipal sanitary sewer authority, local solid waste authority) or by areas (e.g., air, water, waste, emergency response). It's best to keep these documents in order by date so you can easily lay your hands on the information when you need it. The information in these files should include:

- ***Regulatory inspections (active and closed, filed by agency)***
- ***Reports of spills or releases***
- ***Other correspondence with regulatory agencies***

Training Records—While many different environmental regulations require training, most companies find it easiest to organize them according to employee. For each person, place the matrix of the training they need to meet their job responsibilities (as explained in the previous section) in the front of their training folder. Behind this, keep the employee's training certificate and an agenda or topics list for each training session. Place this information in chronological order, and use the matrix to quickly pull training records needed during an inspection. Some regulations (such as hazardous waste) require that you write out each employee's duties in that area. If possible, append these to the employee's position description in their personnel file so it is clear that he or she is working within the scope of their job when doing hazardous waste or other environmental duties.

Use red file folders or file tabs for your emergency contact files so you can get your hands on them quickly during a spill or emergency.

Write down contact information for regulators you communicate with often on the inside of the file folder for easy access.

If your company has a spreadsheet or database computer program, you can keep each employee's training matrix electronically, and print a hard copy to put in the file.

II. Responsible Environmental Basics—“Have to’s”

Figure 3: Master File List (cont’d.)

Media-specific Environmental Management Files

Waste Management—Keep all information associated with management of your business’ waste streams in this file. Suggested categories include:

- **EPA Generator ID number(s)**
- **Current hazardous waste permit and associated documents and correspondence (if applicable)**
- **Records of Waste Determination (information you used to tell whether a waste is hazardous or not; keep them even if the waste is not hazardous)**
- **Hazardous waste shipment paperwork**
- **Special waste shipment paperwork, including, but not limited to:**
 - Universal waste batteries
 - Universal waste lamps
 - Universal waste mercury switches
 - Used oil
 - PCB and non-PCB Ballast recycling
- **Solid waste tipping records**
- **Inspection logs**

Air Management

- **Current permits for major or minor sources and associated documents and correspondence**
- **Emission calculations for Potential to Emit (PTE)**
- **Annual air toxics inventory**
- **Inspection records and chemical usage records as required by permit conditions (e.g., VOC records, pressure drop inspections, operating hours).**

Wastewater Management

- **Correspondence with local wastewater treatment plant authority**
- **Copy of current sanitary sewer ordinance**
- **Pre-treatment permit (if applicable) and associated documents and correspondence**

Storm Water Management

- **Inventory of storm water drainage and outfalls from your property (include map)**
- **Storm water pollution prevention plan**
- **Maintenance plan for storm water infrastructure**
- **Storm water permit (if applicable) and associated documents and correspondence**
- **Storm water annual reports and sampling results (if applicable)**

• • • • •
• **In the language** •
• **of environmental** •
• **management,** •
• **the term “media”** •
• **refers to how** •
• **pollutants can** •
• **get into the** •
• **environment** •
• **such as waste,** •
• **water, or air.** •
• • • • •

II. Responsible Environmental Basics—“Have to’s”

Table 2: Summary of Environmental Files

What to Include	Why?			Records Retention Recommendations
	C ¹	L ²	GMP ³	
Facility ID number(s)			✓	Keep active facility numbers up front, keep inactive facility numbers in the back of the file.
Spill Response	✓	✓	✓	Keep current plans at the front of the file. Keep summaries of drills and exercises for three years. Move dated plans, closed incident reports, and critiques to back of the file after three years and retain indefinitely.
Interaction with Regulators			✓	Keep active inspection documents and notes on interpretations or advice from regulators up front. Keep closed inspection files for three years, then you can shred them. Keep regulatory notes that are no longer in effect at the back of the file as a record of past practices.
Training Records	✓	✓	✓	Keep at the front training records and environmental position descriptions for employees throughout their employment. (Hazardous waste training records must be retained for three years, even if the employee has left.) Move to the back training records of employees who have left the company and keep them in case you need to account for your past practices.
Waste Management	✓	✓	✓	Keep up front active EPA ID numbers, permits, and waste determinations. Move to the back of the file inactive EPA ID numbers, expired permits and the original permit application, and waste determinations for wastes you no longer generate. Keep hazardous waste/universal waste shipping records, and activity reports on file for three years (required), then move them to the back of the file. Keep inspection logs for three years, then shred. Keep solid waste tipping records up front for one year, then move them to the back of the file and keep them.
Air Management	✓		✓	Keep active permits up front. Move to the back expired permits, original permit applications, any calculations or data that you used in the permit process or to prove exemption. Keep up front annual air emissions reports and monitoring results for the past three years, then move them to the back of the file.
Wastewater Management	✓		✓	Keep up front active permits and the current sanitary sewer ordinance. Move to the back expired permits, the original permit application, and expired ordinances. Keep up front annual reports and results of required monitoring for three years, then move them to the back.
Storm Water Management	✓		✓	Keep up front active permits and storm water pollution prevention plans. Move expired permits and plans to the back. Keep up front annual reports and monitoring results for the past three years, then move them to the back.

¹ Compliance—means you need to keep this file to meet recordkeeping requirements of environmental regulations.

² Liability—Keep this file because it contains information that could help stay out of financial and legal trouble from future environmental claims.

³ Good Management Practice—Keep this on file because it provides information that helps you keep track of your environmental program, or saves you and your staff time later.

III. Saving Money Through Sound Environmental Management



In a nutshell...

Now that you have the basics in place, you can move on to the fun stuff: looking for opportunities to make your business more profitable and productive as well as more friendly toward the environment. Read on for a few pointers on cutting back on your energy, water, and waste disposal costs. Your tree is mature enough to begin giving you something back: you can start trimming it back from time to time, getting a good source of stove wood for the winter. And the local wildlife is sure enjoying the acorns.

How can I conserve energy?

Here are three reasons to work on energy conservation:

- First, saving energy in your business translates into cost savings.
- Second, using less electricity means less coal and less natural gas are burned, which reduces greenhouse gas emissions and other forms of air pollution and conserves resources for future generations.
- Third, there is free assistance available to help your business explore even some of the more involved options so why not take advantage of them?

Let us first start with no cost and very low cost



suggestions. Most of these involve changes in employee activities and some readily made equipment changes:

- Turn off lights or office equipment at night and on weekends or take advantage of

natural daylight for lighting needs.

- Disconnect unnecessary equipment completely.
- Turn up or turn back the thermostat during unoccupied times or consider buying a programmable thermostat.
- Caulk and weather-strip windows and doors.
- Install blinds or shades to keep out summer sun to lower air-conditioning costs.
- Purchase fans to keep warm air from accumulating at the ceiling during winter.
- Insulate hot water holding tanks and hot and cold pipes and improve insulation of the climate controlled portions of your facility.
- Replace light bulbs with more efficient ones. You can order inexpensive sub-compact fluorescent lamps (sub-CFLs) through a U.S. Department of Energy (DOE) program. Sub-CFLs last eight to ten times as long as a regular bulb and use one quarter to one third of the energy.
- Place your lights on motion detectors or install timers on lights and electric equipment to keep them on only when in use.

Greenhouse gases such as carbon dioxide (CO₂), sulfur dioxide (SO₂), and nitrous oxide (N₂O) are responsible for global climate change, acid rain and smog.

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Call your local utility company to check on having them evaluate your building for energy efficiency (this is often a free service). They will provide you with specific options for making your business more energy efficient. It may be worthwhile to replace lighting fixtures instead of just the bulbs. The new fixtures can allow you to utilize a smaller bulb and get the same amount of light, or reuse the ballast portion of the light.



Money Isn't All You're Saving

Consider Participating in the Energy Star® Program. Energy Star® is the trade mark the U.S. Environmental Protection Agency (EPA) uses to signify energy-efficient products. This voluntary program is a partnership between the EPA, U.S. Department of

Energy (DOE), product manufacturers, local utilities, and retailers. The agencies set energy efficiency criteria for specific consumer and commercial products. Products meeting or exceeding the energy efficiency criteria established by the agencies are awarded the Energy Star® label. These include items like computers, monitors, fax machines, printers and copiers. Energy Star® also has a small business partnership program.

There are some real possibilities for cost savings over time by replacing major equipment within your facility. Not only will there be savings on operational costs because of increased efficiency, it can also avoid maintenance problems that take up time and budget, and justify replacing equipment that is out of date for reasons other than just efficiency. One example is that traditional systems often have wasted energy and money by running motors continuously at full capacity, regardless of the end-use need. Fortunately, motors can now be equipped with variable speed drives to allow the motor to closely match its power output with the energy necessary for the task—eliminating waste and saving money.

It is possible to make necessary upgrades with no up-front capital and pay for them later through the energy savings that result. Best of all these savings can be guaranteed through the energy performance contracting and assistance

Twenty thousand dollars can buy a lot of bread. That is what a fast food franchise owner is saving by taking advantage of energy-efficient technologies at his restaurant. What is his recipe for success? He upgraded his store's lighting from 40-watt T-12 lamps and magnetic ballasts to T-8 lamps and electronic ballasts. In addition to his 50-percent energy savings, he now has brighter lighting to make the food look more appetizing. He replaced his old air-conditioning units with high-efficiency models and added ceiling fans to circulate the store's air. He can now set the store's thermostats 3 to 5 degrees higher in the summer without affecting comfort. With these upgrades, he will pay back his investment in three years. (Source: EPA Smallbiz Success Stories)

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provided by your state energy office in cooperation with the Energy Services Coalition (ESC). This works by entering into an agreement with a private energy service company (ESCO). The energy service company identifies and evaluates energy-saving opportunities and recommends some improvements to be paid for through savings. The savings must meet or exceed annual payments to cover all project costs over the contract period, usually seven to ten years, or the energy service company pays the difference. To ensure savings the energy service company offers staff training and long term maintenance services. Your state energy office can provide you with information, local case studies, and resources to get you started.

Alternative energy sources merit consideration too. At University of Texas Medical Branch, alternative energy uses include the installation of photovoltaic system in a parking garage. UTMB parking garages are required to have lighting 24 hours a day, 7 days a week to provide safe parking. The technology works like this: sunlight strikes specially designed panels, causing electron movement between different types of materials within them, thus transforming the sun's energy into electricity. These photovoltaic panels are currently being installed with grant money from the Texas Natural Resource Conservation Commission. Solar water heating is also becoming a very popular way of saving energy in facilities with large water heating needs.

For More Information...

Guide to energy efficiency for small business:
<http://www.epa.gov/smallbiz/guidesplash.html>

Energy Star® toll-free technical support line:
1-888-STAR-YES

For info on motor selection: <http://www.eren.doe.gov/femp/procurement/pdfs/motor.pdf>

The Department of Energy's Industrial Best Practices for compressed air:
http://www.oit.doe.gov/bestpractices/compressed_air/

Web site for state renewable energy assistance programs:
<http://www.energy.ca.gov/reports/500-99-008.PDF>

How can I conserve water?

Think about it: most business activities are using part of a limited supply of water that is good enough to drink. Only a tiny fraction of the planet's water is drinkable. Ninety-seven percent is sea water, which is expensive and difficult to desalinate. About two percent is caught in polar ice caps. That leaves just one percent to sustain life. Much of the world's population gets their drinking water from natural underground storage tanks called aquifers. Humankind is rapidly using up those reserves, digging ever-deeper wells and lowering water levels in every continent. Also, your business pays for



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using this resource. This may not seem like a large part of your overhead. That is, until you realize that you pay for it twice: coming to the tap and going to the sewer. Take a look at your combined water-sewer bill. If you want to save some money while reducing the impact of your business on your community's water supply, consider some of the ideas below as a starting point for your water conservation efforts.

Find out how your company uses water. You may have water guzzling processes that can be changed or updated. Some water cooled equipment can be replaced with air cooled equipment. Are you spending more for the water to run a process than you would spend to buy the goods or services directly? If the water use in the process can't be eliminated completely, perhaps the water can be reused. For example, can your business reuse process water to wash equipment instead of sending it to the sewer? Since few people would ignore ways to reduce chemical use, doesn't it make sense to look at reduction in water use as well? Rinsewaters can be used for lower priority cleaning applications just as you might use a slightly contaminated solvent for another use before you dispose of it. And just as used solvents can be reclaimed through distillation, water can be reclaimed through ultrafiltration. Furthermore, water recycled through ultrafiltration or reverse osmosis systems can be of better quality than supply water.

Keeping your plumbing fixtures in good working order or upgrading fixtures can save

both water and money. Below are several ideas and suggestions for you to try:

- An easy way to test for leaks in the toilet is to put food dye in the toilet tank. Let it sit for an hour or two without flushing. If you see dye in the toilet bowl, you have a leak. Check to make sure the overflow tube is not flowing continually.
- Consider an inspection program for leaks.
- Repair dripping faucets by replacing washers.
- It may be worthwhile to replace plumbing fixtures with more water efficient options.
- Faucet aerators with flow restrictors are available to reduce water use.
- Some heating and cooling equipment models reuse or recycle water.
- Automatic shut offs on water supplies such as sinks and hose nozzles will keep them from being left on.
- High pressure/low volume cleaning nozzles on spray washers also use less water.
- Cover liquid holding areas when not in use to reduce evaporation.

If you have grounds or greenspace, look at outdoor water uses, such as landscaping. Remember that established plants and lawns need less water than new ones, and many native plant species do with less water than imports. Here are some additional ideas:

- Adding mulch can further reduce your water needs.
- Set sprinkler patterns to avoid watering structures and concreted areas and install

Did you know how quickly a small water leak can add up? Toilet leaks can waste more than 50 gallons of water a day, 18,250 per year. One drip per second from a leaky faucet equates to 2,700 gallons of water per year.

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moisture-detection devices on automatic outdoor sprinklers so that they will not activate when it is raining.

- Water lawns early in the morning when temperature and wind speed are lowest to reduce evaporation.
- Upgrade to an irrigation system that relies on data on natural water loss through solar radiation, temperature, wind velocity, soil conditions and humidity to avoid over watering by replacing only the water lost.



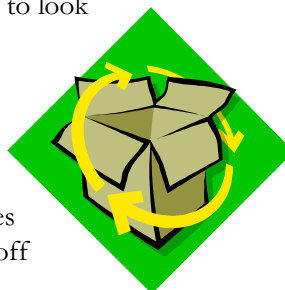
Small adjustments in your process can help you to save money on your water and sewer bills. Keep track of these expenses so that you can gauge progress and quickly spot changes. Check your meter for increased use that can signal a problem. It is possible through continued improvements that your company could reach a point where there is “zero discharge” from your processes through water recycling and reuse. Other companies have achieved this level of efficiency motivated either by a desire to reduce cost associated with water consumption or to eliminate the need to permit wastewater discharge or to pay to dispose of wastewater. If possible, talk with other companies about methods they have used to save water. Your water utility may also be a source of information on conservation methods.

How can I reduce waste management costs?

Waste disposal can drive up unit costs on your production lines. Here are some tips for getting them under control.

One strategy is to make sure you are managing your wastes efficiently. When you hire a hazardous waste contractor, ask them to help you find ways to cut down on costs. While it might seem that it is not in your contractor’s best interest to do this, the hazardous waste market has gotten so competitive that contractors are looking for ways to add value to their service and set themselves apart from the competition. Things you should consult with your contractor about: would accumulating your waste in a container of a different size or type make it less costly for the contractor to handle? Could you save money by sending your hazardous waste solvents for use as fuel for cement kilns? Maybe there is a component in your waste that makes it hard to manage and drives up its disposal cost. Look for an opportunity to keep this item out of the waste either by collecting it separately or finding a replacement for it in your process.

Another approach is to look for ways to reduce the amount of wastes your business creates. A simple example is to reuse corrugated boxes two or three times before you send them off

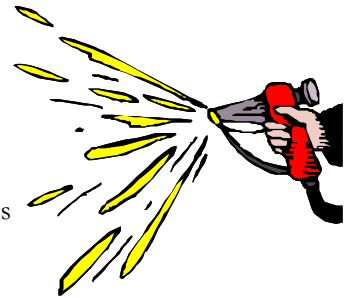


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for recycling. Since new boxes are expensive, savings can add up fast. Let's use the example of a spray painting operation to illustrate several more waste recycling and reduction ideas. Begin with the inventory of paints you keep on hand. Do you sometimes have paint that you can't use up because their shelf life has expired? Or excess paint that you have no use for anymore and has to be disposed? If so, take a look at your purchasing practices. Many vendors will work with you on the concept of "just in time and just the right amount." This means that they will deliver your raw material more frequently in amounts that nearly match your process needs. This may be a little more costly than ordering bulk quantities up front, but you may be surprised: with

today's shipping options, many suppliers have the ability for quick delivery at only a little additional cost. Once you take into account all the costs of handling paint purchased in bulk (managing the material in storage, dispensing it, disposing of excess or expired material) you may find that you will come out ahead by opting for "just in time" delivery.

After you look at how paint is delivered to your process, take a look at the process itself. Sit down with the workers who are most familiar with the process and figure out exactly how wastes are created



in the spray painting operation. Perhaps you are using fresh mineral spirits each time you clean the paint guns. What if you could keep some of this mineral spirits in a container to be reused the next time you clean the guns? It's likely that you use several rinses to get the guns clean and that the mineral spirits used in the final pass isn't very dirty. This could be reused in the initial rinse the next cleaning and brand new mineral spirits saved for the final rinses only. Every bit of chemical that is reused is saving that much new material and reducing the waste created by that amount too. So, you save money on both ends of the process!

Creative Solutions...

A trophy company owner had a dilemma—finding an inexpensive shipping solution for the large-sized trophies. The large, odd-sized boxes he needed were more expensive than normal shipping boxes. Through the Minnesota Materials Exchange program, the business owner was put in touch with a chemical company that was willing to part with a supply of boxes that were the exact size he needed—for free! Since then, the trophy company has found other boxes and bubble wrap for packing trophies through the program. Using the Materials Exchange Program his company saves about \$4,500 per year.

For other case studies see:

State of Texas: <http://p2.utep.edu/success/index.cfm>

State of Minnesota: <http://www.moea.state.mn.us/p2week99/stories.cfm>

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Another strategy is to find a different material to use to clean the paint guns so that a hazardous waste would not be generated at all. There are new clean up products available that are not combustible and aren't hazardous wastes once they are used up. Of course, it would be prudent to do some trials on a limited scale so you can make sure the switch is going to work just as well and be cost effective. Beyond paint operations, there are similar green products available for parts washing and stripping operations, to name a couple. Some of these products have been on the market for more than a decade, so they have the bugs worked out of them. In addition to saving money and reducing the amount of hazardous waste your business generates, many of these greener products are also safer for employees to use.

Another thing you might try is to get better equipment. Perhaps you can upgrade your spray paint equipment to a gun that has a smaller reservoir but delivers the paint just as effectively. Use plastic liners to eliminate cleaning the gun reservoirs. Also, a newer HVLP gun may be more efficient by having a higher deposit efficiency and less overspray. Consider purchasing an enclosed paint gun cleaning system that recycles cleaning fluid. This could save on waste disposal and reduce air emissions. So, by carefully selecting new equipment when upgrading you reduce the amount of hazardous waste generated per unit painted.



For More Information About Pollution Prevention...

EPA

EPA Pollution Prevention Information Clearinghouse:

<http://www.epa.gov/opptintr/library/libppic.htm>

EPA's Envirofacts: http://www.epa.gov/enviro/index_java.html

EPA's Environmentally Preferable Purchasing web site:

<http://www.epa.gov/oppinr/epp>

Region 1: <http://www.epa.gov/region1/compliance/assist/p2page.html>

Region 2: <http://www.epa.gov/r02earth/p2/p2home.htm>

Region 3: <http://www.epa.gov/reg3p2p2/>

Region 4: <http://www.epa.gov/region4/air/polprev.htm>

Region 5: <http://www.epa.gov/reg5rcra/wptdiv/p2pages/index.html>

Region 8: http://www.epa.gov/region08/conservation_recycling/p2home/p2home.html

Region 9: http://www.epa.gov/region09/cross_pr/p2/index.html

Region 10: <http://yosemite.epa.gov/R10/OWCM.NSF/prevent/prvntrec>

Other

Pacific Northwest National Laboratory P2 website: <http://www.pnl.gov/p2/>

How do I predict savings from proposed projects?

This part of the Guide has emphasized projects that are likely to have a financial pay-back. It is understandable that your boss and other decision makers will want to know how much and how soon the return will be for the effort and funding invested in the project. But, after you have sharpened your pencil, what exactly do you include in a cost work up like this?

The question you need to answer is, "What are the up front costs of the change you are considering, and how long will it take for enough savings to accumulate to offset these up front

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costs?” This is the “return on investment,” and usually, if it will take more than two years for benefits to outweigh the initial outlay, it may be difficult to convince company managers to do the project unless there are other really good reasons to do it, such as improved employee safety. With this in mind, here are some cost categories to consider as you work up your analysis.

Initial start up costs. In addition to the cost of purchasing, will the change require remodeling or modifications to meet building codes?

Changeover costs. When changing from the old process to the new process, what will happen to excess raw materials that can no longer be used? Will employees need training before they can begin using the new process? Will you need a trial period to work out any bugs?

With the up front costs nailed down, compare the old process and the new process head to head.

Operating costs. These can include electricity, water use, and ventilation systems. Also look at whether the new process will be more or less labor intensive. Will the new process be more productive, for example, higher units of output per hour or lower amount of raw materials per unit?

Environmental management and compliance costs. What are the waste management costs? Will compliance be made easier by the

new process? For example, will it eliminate a required report to regulators? Will it put you in a hazardous waste generator category with reduced requirements? Will you be able to discontinue an environmental permit? If so, try to estimate the time company employees put into these efforts to come up with an estimate of dollars saved.

Avoided costs. In addition to avoided waste disposal costs, consider whether the new process requires less raw material inputs, thus saving costs in purchasing them. Will the new process eliminate spills and their associated costs? Will there be less PPE and safety training required?

It may not be a formal and totally complete analysis, but if you think through all of the above categories you will have a much clearer picture when you get done of whether your idea is as valuable as you first thought.

IV. Keeping the Program Alive



In a nutshell...

Your tree is big and strong now. In fact, it has grown so dense at the top that it needs to have some major trimming back to keep it healthy over the long run and to let the sunlight get down to the rest of your yard. The environmental management program should be regarded in the same fashion as managing any important part of the business process. The goal, as with any aspect of business, is to do it better and do it easier. This part of the Guide helps to accomplish that. It shows how the company environmental policy is the tap root of your program, feeding environmental concerns into all decision making branches. While it may seem like you have to devote more time at first, you will also be streamlining and integrating environmental responsibilities – thinning them out and making them easier and less time consuming for each employee. Finally, this part describes methods that you can use to gauge progress over time and form a simple environmental plan to serve as a compass for your program.

How do we get it all done?

So, by now you have taken some steps to put a basic environmental management program in place and find that it makes good sense. But, do you wonder how you are ever going to keep it going while still meeting everyday demands of your business? It's time to enlist some help. Approach your company leaders about setting up an environmental management team and making a company environmental policy. The team can then use the policy to make the company's environmental efforts more efficient and to get employees more actively involved in them.

The team approach will help to fit another activity into an already busy schedule and the discussions it brings about will create a more

complete picture of where you currently stand and where you go from here. Someone must lead the team and encourage communication between employees, supervisors, and company leadership. For this to work, the team leader needs some

authority to keep things moving. The team should include representatives from

throughout the company. For example, at a small company, a team could include supervisors from each process line as well as people responsible for human resources, sales, and plant operations. In a very small company, the team leader and the business owner may be the same person and the team may consist of the entire staff. Small companies can have a real advantage over larger

companies. Communication is easier, staff are used to having multiple roles, and processes are simple and well understood.



IV. Keeping the Program Alive

The first task is to write a company environmental policy. The company owner or president may want to do this him or herself, and pass it down to the team, or he or she may ask the team to do it. A company environmental policy is the shared starting point for people to understand the basic environmental beliefs and commitments of the company's leaders. It states how environmental concerns are considered in the company's decision making and how these concerns fit into its day to day activities. The policy should reflect the business owner's commitment to the environmental program. It should be short, to the point, and well communicated throughout the company so that employees understand and remember the policy. All the other steps for improving the environmental management program are geared towards meeting the environmental beliefs stated in the policy.



With the policy in hand, the team can begin to organize and write down the activities that make up your environmental management program. To do this, your team will want to bring together and examine all of the parts of your environmental management program that your company developed by working through Section II of the Guide. This written program will support your

policy, and later form the basis for setting goals and making an environmental management plan.

Your written program should also assign roles and responsibilities for accomplishing the activities that you have defined. Break these down into small manageable jobs that are clearly defined so that everyone knows what their job is and nothing gets missed. When you add up the duties of all individuals it should provide complete coverage of your company's environmental responsibilities and commitments, but no one person should have too much to do.



Another good reason to spend time on a written program is that the team will see where there is duplication of efforts that can be streamlined, so your company can meet regulatory requirements in a more efficient way. For example, your team may discover that employees are being pulled out of their work for training several times per year. What if your company sets aside time for training covering all requirements on one day each year? You can also streamline training by covering more than one regulation under a given topic – such as training on labeling requirements that covers OSHA, EPA, and NFPA requirements.

Another area that can often be streamlined is spill preparedness. Some small businesses may have more than one spill response plan – one to cover storm water regulations, one to cover

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hazardous waste spills, and one to cover petroleum product spills. For a small company where these plans are not too complicated, covering all the requirements in one plan will reduce the amount of effort it takes to keep it up to date. It makes the plan more effective too because employees don't have to learn a different set of procedures for each plan, and try to remember during a spill situation which plan applies to it.

How do we involve our employees in environmental management activities?

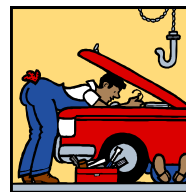
The person or persons at the top of your company must offer continued visible support for environmental management if the program is to be taken seriously. In the same way, environmental efforts within your company will be more successful if employees are directly involved. Employees are a great source of knowledge on environmental issues related to their work areas and the effectiveness of current procedures. When considering design or operating changes to improve environmental performance, be sure to involve employees who work in that area. Their day to day experience gives them insights about their process that others may not see.

The Environmental Management Team can start to get employees involved by asking them to write down their procedures for normal daily activities. Having these written down makes sense so that nothing gets forgotten and procedures are easy to communicate. These should be

Ways to Keep Employees Involved

1. *Post the Environmental Policy at prominent locations throughout your business.*
2. *Set up a suggestion box for environmental improvements. Recognize or give awards to employees that make suggestions that get incorporated into environmental management procedures.*
3. *Inform employees through a company newsletter or bulletin board and provide them updates on the company's progress in fulfilling its environmental policy.*

evaluated by Environmental Management Team members so that each employee's activities include good environmental management practices. Without good environmental management practices, employees may get the impression that anything other than steps absolutely crucial to making the product are "extras." They have to rely on word of mouth for information, and the answer depends on who they ask. With no written procedures, they are more likely to take shortcuts when pressed for time that are not safe or good for the environment.



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Written procedures make cross training easier, ensuring that someone will be available to perform a critical function if the regular employee is away. They can make turnover easier because the person hiring will have a better idea of what each job entails. Supervisors can use the good environmental practices in written procedures to explain to new employees how the company environmental policy relates to their job. Once you have good environmental practices written down, your company can reinforce their importance by making them part of job performance evaluations.

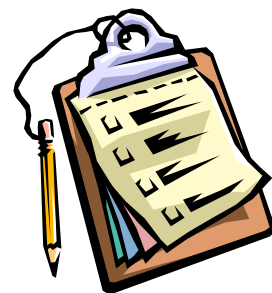
Is this working—are we getting the results we wanted?

After your environmental management Program has been in place a while you might be wondering how you can tell how things are going. Are you making progress on getting into compliance? Are all your shops and operations getting the information they need to keep moving ahead?

Audits are a great way to gather information on how you are doing and to educate your employees about what needs to be done. The Environmental Management Team can develop audit checklists with input from staff in their areas. Once you have a checklist of environmental management practices that your business wants to improve, ask the employees in each work area to help fill out these checklists. This will give them a first hand look at what they are doing right and what still needs improvement. If

getting into compliance is a big priority, then there are many outside resources you can draw on. A representative from your State Small Business Assistance Program can come do a compliance audit for you. This has the added weight of an outside expert without the headaches that you would get from a true regulatory inspection. Since a compliance audit conducted by an outside agency feels a lot like a regulatory inspection to your employees, it is also good practice. Organize audit findings and follow up items by work area to make it easier to pass them on to those responsible for the area. In addition, the auditor should provide a summary of larger tasks that need to be done company-wide.

Your audits help you gauge which areas you are making progress in and which areas are lagging. Once you have audit results, it is a good time to set some goals and targets. After all, there is a lot of truth to the old adage, “What gets measured gets done.” Get together the Environmental Management Team. Go over the audit results with them and ask them for their impressions of how things are going. This is a great time to go over other information that tells you how you are doing: How many spills did you have last year? Do problems in a particular area signal that procedures need to be updated? Are new employees getting trained soon after they come on board?



IV. Keeping the Program Alive

As a group, decide on a few goals. Be sure that these goals are realistic and fit into previously established organizational goals. With all the other demands on small businesses, setting expectations that are exceedingly difficult to meet would sure put the chill on the progress you've made so far. After the group agrees on a goal, then they need to decide how to measure in the future whether or not you are making progress toward your goal and by how much you want to improve. This is your target.



program, and, well, that's just good business.

You may not realize it, but you have just laid the groundwork for an effective annual plan for your environmental management program. Take your company policy, add a summary of audit results, accomplishments, and setbacks for the past year. Then, review the thinking used to analyze problems, set criteria, and select goals for the coming year, and update the list of goals and targets. Voila. You have an environmental plan. Of course, this is a simplified planning approach – but, but once you have the process established, you can build on it. Whenever the plan changes enlist the Environmental Manage-

On Setting Measures and Targets

Let's say your goal is to reduce hazardous waste. You could look for a percentage reduction in the amount of all hazardous waste generated. But, this won't be meaningful if your waste generation is linked to production and your production doubles in the coming year. What if you look for a percentage reduction in hazardous waste generated per unit of product produced? Now you're talking. This is a measure you can use to set a meaningful target—say, a ten percent reduction in hazardous waste generated per number of units produced on Line 1.

One last bit of advice on goals and targets. Don't set too many of them in a given year, or you will wind up with a mini-bureaucracy of your own! Remember, the beauty of this tool is that you can get back together next year, look at your results to see whether your company met its goal and then regroup. You can choose a different approach if the first one you tried isn't as useful as you hoped. You can add new goals – perhaps in an entirely different area or production line. Once you have the system set up to measure performance, keeping it going will be a lot less time intensive than the initial investment to get it up and running. So take your time to select goals that have a lot of mileage and find the right measures for them. In just a few years, you will be able to demonstrate in hard numbers the value of your environmental management

IV. Keeping the Program Alive

ment Team to communicate the changes. Employees want to know why it is important to accomplish a particular environmental task and what part they are to play in achieving selected goals.

OK, now you have your written environmental management program, you have a plan for what you want to improve and how you are going to measure improvements. By now, employee environmental management responsibilities are so well defined and accepted that they are second nature – just like filing a timesheet, or starting up their line at the beginning of a shift. Great job! There's only one last thing your company needs to do to make your environmental management program bulletproof. Make sure top management at your company checks in on a regular basis.

If you are the boss of your small business, then getting top management involved will be easy, won't it? Either way, company leadership needs do their own assessment of how the environmental management program is working. Ideally, they have supported the development of your environmental management program and plan all along. Now they need to revisit the environmental policy and do their own evaluation of whether the program is still in synch with company goals. Finally, they need to pull this together into a written review to give the Environmental Management Team feedback on what needs to be changed, if anything.

What exactly is an environmental management plan anyway?

An environmental management plan includes the actions needed to comply with regulations and meet additional environmental goals and targets, including who is responsible, what resources are needed, and when work is to be completed. It is the compass for your environmental management program because it tells you what direction you are going in.

V. Taking it Outside Your Facility



In a nutshell...

This part of the Guide explores the value of paying attention to relationships beyond the walls of your small business to show off and improve your environmental management activities. You have a grand old oak tree providing habitat for birds and wildlife, and shade for your yard and your neighbor's. Your environmental management program isn't as obvious as an oak tree, but it is providing value to your customers and your community just the same. This part suggests ways to make neighbors, the surrounding community, customers, and others aware of your environmental management achievements and how to team up with them to improve environmental performance.

How do I communicate our environmental management efforts to those outside of our business?

There are people outside your business who are either interested in your efforts or can help you with them. One relationship that you are probably very interested in is the one you have with your customers. After all, that's what keeps the money coming in and the wheels turning. Now that your company has invested effort to develop a good environmental program you want get patted on the back for it! But the relationships your business develops with both suppliers and the regulatory community are also important to your business. That is where you get information and the support to make your program more effective.

The opinions of your neighbors and the community around you are important to the

success of your business. How do you tell these people that you are taking steps to be environmentally friendly? First, you can post a copy of your company environmental policy so that it is visible to anyone who visits your business. Look for a way to make them a partner in your efforts such as having them return your package for a refill. You can provide a free service to them by allowing them to drop off a waste that you are recycling such as waste oil, paint or used batteries. This gives them yet another reason to come see you. Another idea is to sponsor an education day for a local school biology, ecology, or environmental science class to tour your facility. Every parent that asks "What did you do in school today?" will get to hear a little about your company!

You can also post information or make information available on the last improvement you have made at your business and how it made a



V. Taking it Outside Your Facility

positive impact on the environment. Place this information in your front office to help waiting visitors pass the time.

Companies who don't see their end users in person can add information about positive environmental achievements directly to the product packaging. You can modify your packaging to show use of a post consumer recyclable product or the potential for recycling after use. These steps may help catch the eye of new customers as well. You can create a refill version of your product that eliminates the large packaging completely. This may attract the customer who is conscious about the amount of waste they generate or it may just be more convenient to carry or store. You can also pursue obtaining environmentally friendly endorsements for your products such as "Energy Star" or "organically grown." Consumers have proven that they are interested in buying "environmentally friendly" or "green products." People will invest extra money in energy efficient products if they know that these products will pay for the difference in future savings. The market for organically grown produce continues to increase even though the prices for these items are substantially greater than their less environmentally sound competitors. There are organizations and web sites that spread the word about "green products". Your business may obtain endorsement from these sources if your product is produced in an environmentally friendly manner.

How can the activities of our suppliers complement our efforts towards environmental management?

Your suppliers are an extension of your successful program. Once you communicate to your suppliers and vendors that you favor raw materials and services that result in improved environmental performance, they can assist you with your needs. They can help to reformulate your raw materials to meet your waste reduction goals and help you find better substitute products. But to take it a step further, some suppliers will allow you to return unused product to be beneficially reused or recycled in their process. You can encourage them to incorporate recycled materials in their products and packaging, or to modify the quantity of product or the product container to best fit your needs. You can talk with them about the option of returning their packaging for a refill. Many companies have discovered that it saves them money to pick up the empty containers when they deliver fresh product, rather than constantly replacing them.

One resource for choosing environmentally friendly products is www.greenseal.org. When you consider a new product:

- Ask manufacturers for substantive data on their green products compared with conventional products.



V. Taking it Outside Your Facility

- Obtain customer references to verify product performance.
- Request a guarantee policy and special prices to test green products on a trial basis.
- Determine whether another organization has certified that the product is environmentally preferable.

Of course you want to make sure that the greener products perform to acceptable standards, are competitively priced, and do not offset environmental gains in other areas, for example, a cleaning product that requires more water.

take advantage of, such as agencies that help you find the pollution prevention ideas that save your business money. Consider having a representative from your business get involved in local boards or committees such as the Local Emergency Planning Committee. Often the Chamber of Commerce will have an environmental affairs group. The regulatory agency may have an industry feedback group of some type. Their meetings are a chance for them to give you the information that you need and for you to take them questions and concerns in a relaxed atmosphere.

What's the key to improving my image in the regulatory community?

There are many organizations in place to assist small businesses. Taking advantages of these services is viewed positively by regulatory agencies and can offer many benefits. Your SBAP staff will help you get your company into compliance and can give you a heads up as to what new rule may be looming on the horizon. The Regulatory Flexibility Act requires that the impact of new regulations on small businesses be studied before they go into effect. Staying in the loop will allow you to put your two cents in before another rule is added to the books. The SBAP staff can also tell you about other services you might want to



VI. Summary



In a nutshell...

In the very beginning, the Guide said that growing a good environmental management program is a lot like growing a tree. If you have read this guide from beginning to end, you should now see how: first you plant the seed and water it, keeping it from getting stepped on or eaten alive. Once the seedling comes up you have to keep it from getting choked out by weeds and make sure it gets sunlight and fertilizer. Once it is a grown tree, you have to thin it out when it gets too tangled and top heavy. After a gradual process investing a little effort at a time, your tree will be strong enough to take care of itself with only a little attention from you. Then you can enjoy the protection and the shade it provides you.



What is an Environmental Management System?

An Environmental Management System is that part of a business' management efforts devoted to putting in place the necessary elements to develop, execute, achieve, review, and maintain its environmental policy. These elements include organizational structure, planning activities, practices, procedures, processes, and resources. In short, an Environmental Management System is a combination of continuous quality improvement and strategic planning directed towards environmental management.

The components of an Environmental Management System were outlined in 1995 in a

standard developed by the International Organization for Standardization called ISO 14001. Since then, many approaches to Environmental Management Systems have been developed, but nearly all include these components:

Environmental policy. This is the statement by top management of their intentions and principles in relation to environmental performance. The policy provides a framework within which the environmental management program operates.

Environmental planning. The steps in formal environmental planning include figuring out all the ways the business impacts the environment (called "environmental aspects"), identifying the

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legal and other requirements that the business is subject to, setting goals and targets to improve environmental performance, and putting in place a written program to achieve goals.

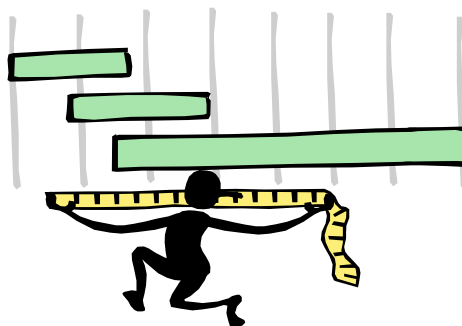
Implementation and Operation. This part of the Environmental Management System defines the structure and assigns responsibility for environmental management within the business. It lays out training needs and how they will be met. It sets up communication channels that ensure people at all levels of the business are aware of the Environmental Management System and that persons outside the company can provide input on environmental management. It sets up an information management system including document control. It outlines procedures for control of operations that impact or have potential to impact the environment and sets up an emergency preparedness and response program.

Checking and Corrective Action. This part documents the methods for monitoring processes and measuring their impact on the environment, and explains what corrective actions to take and who is responsible to take them if there is non-conformance. It outlines measure to prevent non-conformance. It defines what environmental records must be kept and for how long. It also explains the audit program used to check on how well the business is meeting the goals and requirements of its Environmental Management System.

Management Review. This is a process in which the business owner and other key people periodically review the Environmental Management System to determine if it is still suitable and effective.

How does what I've done so far relate to an Environmental Management System?

Although the description of an Environmental Management System may be daunting, how to put all of these components in place is described in earlier sections of the Guide, as shown by Table 3. So, if you continue to make steady progress on the recommendations in Sections II through V of the Guide, you will eventually have the components of an Environmental Management System.



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Once I have an Environmental Management System what can I do with it?

Having an Environmental Management System makes it easier for you to answer inquiries from neighbors, community leaders, and regulators about your business' track record with respect to the environment and it gives you a comfort level that you have covered your bases in complying with environmental regulations. In addition, some states have programs (for example Florida's Partnership for Ecosystem Protection) that give recognition, awards, or other perks to businesses that demonstrate they have an effective Environmental Management System in place. EPA also has a program, called National Performance Track, that recognizes and encourages top environmental performers – those who go beyond compliance with regulations to attain levels of performance that benefit people, communities, and the environment. (See www.epa.gov/performance-track/index.htm.) If you want to go all out, you can even hire an outside auditor to come in and look at your Environmental Management System to confirm that has all of the elements required by ISO 14001 and is functioning properly. If it passes the audit, your company will be "ISO 14001 certified." Since certification is expensive, it may not be worthwhile for a small business to do this unless a major customer requires it. (For example, some major automobile manufacturers now require their suppliers to be ISO 14001 certified.)

Why are trade organizations and regulatory agencies supporting Environmental Management Systems?

Many businesses have demonstrated that through their Environmental Management System they can make great improvements in their environmental performance while saving money and increasing productivity. So, trade associations and other business organizations support Environmental Management Systems because they make good business sense. Also, if the majority of companies in a business sector adopt Environmental Management Systems and show greatly improved environmental performance, this enhances the long term viability of the business sector, and gives it a fresh marketing angle.

Regulatory agencies support Environmental Management Systems because they are aware that the traditional "command and control" system of environmental regulation is limited in its potential to have major positive impacts on the environment over the long term. They have become more open to working with industries and trade organizations on more flexible and performance-based approaches to improving environmental performance than traditional compliance methods. When making agreements to allow such flexibility, regulatory agencies often require parties involved to put an Environmental Management System in place to show account-

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ability for their actions with respect to the environment even in the absence of certain elements of the traditional compliance framework. This allows regulatory agencies to make forward progress towards streamlining regulations while accounting to the public that the new systems are working.

How can I get help with putting an Environmental Management System in place and getting recognition for it?

Your state Small Business Assistance Program and Small Business Ombudsman can give you assistance with Environmental Management Systems. (To get contact information for your state, visit www.smallbiz-enviroweb.org/.) They can also help you make application to EPA's National Performance Track program, make you aware of other recognition or reward programs that your business may qualify for, or put you in touch with reputable third party auditors if you wish to seek certification. EPA's Small Business Division hotline at 800-368-5888 can also provide assistance and refer you to other resources. There is also a wealth of resources about Environmental Management Systems available at EPA's website www.epa.gov/ems/. The web site includes a matrix of available forms, checklists, handbooks, and other references about Environmental Management Systems.

So, what's the bottom line here?

This Guide has given you tools to develop a complete environmental management program. If you have followed the recommendations in Guide Sections II through V, you have a solid compliance program, an environmental policy to focus your efforts, programs and procedures that are written down and kept up to date, and clearly defined roles that are understood by each employee. You set goals and targets for each year and have a

plan to move your business in the direction of improve-

ment. You worked at this because it made good business sense, has increased your business' productivity, and has brought you peace

of mind. If you have gotten this far, you have put in place all the components to have an Environmental Management System. But, whether you get this far, and what you do with it once you do, is your decision. In a nutshell, whether or not to put in place a full fledged EMS is up to the small business owner.



